FCC 312 Schedule S	FEDERAL COMMUNICATIONS COMMISSION SATELLITE SPACE STATION AUTHORIZATIONS (Technical and Operational Description)	Page 1: General, Frequency Bands, and GSO Orbit

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: GESN @15E	e. Estimated Date of Placement into Service:	i Will the space station(s) operate on a Common Carrier Basis: N
b. Construction Commencement Date:	f. Estimated Lifetime of Satellite(s): 15 Years	j. Number of transponders offered on a common carrier basis:
c. Construction Completion Date:	g. Total Number of Transponders: 0	k. Total Common Carrier Transponder Bandwidth: MHz
d. Estimated Launch Date:	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 18000 MHz	l. Orbit Type: Mark all boxes that apply: [X] **GSO** [ ] **NGSO**

S2. OPERATING FREQUENCY BANDS Identify the frequency range and transmit/receive mode for all frequency bands in which this station will oper
Also indicate the nature of service(s) for each frequency band.

Frequency Band Limits				e. T/R Mode	f. Nature of Service(s): List all that apply to this band
Lower Frequency (_Hz)		Upper Frequency (_Hz)			
a. Numeric	b. Unit (K/M/G)	c. Numeric	d. Unit (K/M/G)		
47.2	G	47.5	G	R	Gateway beams - 1 x 300 MHz channel
47.5	G	47.9	G	R	Gateway and user beams - 1 x 400 MHz channel
47.9	G	48.2	G	R	Gateway beams - 1 x 300 MHz channel
48.2	G	50.2	G	R	4 x 500 MHz channels
37.5	G	40.0	G	T	Gateway/ Hub applications - 5 x 500 MHz channels
40.0	G	42.0	G	T	4 x 500 MHz channels
3650	M	3700	M	T	Telemetry- 2 MHz spectrum of this band (TT&C)
6425	M	6525	M	R	Telecommand: 2 MHz spectrum of this band (TT&C)

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 15 E	b. Alternate Orbital Longitude (Degrees E/W):		c. Reason for orbital location selection: Part of GESN satellite system.
Longitudinal Tolerance or E/W Station-Keeping: d. Toward West: 0.05 Degrees e. Toward East: 0.05 Degrees	f. Inclination Excursion or N/S Station-Keeping Tolerance: 0.05 Degrees	Range of orbital are in which adequate service can be provided (Optional): Degrees E/W g. Westernmost: 11 E h. Easternmost: 19 E	
i. Reason for service are selection (Optional):			

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S4. ORBITAL INFORMATION FOR NON-GEOSTATIONARY SATELLITES ONLY

S4a. Total Number of Satellites in Network or System:

S4b. Total Number of Orbital Planes in Network or System:

S4c. Celestial Reference Body (Earth, Sun, Moon, etc.):

S4d. Orbit Epoch Date:

For each Orbital Plane Provide:

(e) Orbital Plane No.	(f) No. of Satellites in Plane	(g) Inclination Angle (degrees)	(h) Orbital Period (Seconds)	(i) Apogee (km)	(j) Perigee (km)	(k) Right Ascension of the Ascending Node (Deg.)	(l) Argument of Perigee (Degrees)	Active Service Arc Range (Degrees)		
								(m) Begin Angle	(n) End Angle	(o) Other

S5. INITIAL SATELLITE PHASE ANGLE For each satellite in each orbital plane, provide the intital phase angle.

(a) Orbital Plane No.	(b) Satellite Number	(c) Initial Phase Angle (Degrees)

NO NGSO DATA FILED

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S6. SERVICE AREA CHARACTERISTICS for each service area provide:

(a) Service Area ID	(b) Type of Associated Station (Earth or Space)	(c) Service Area Diagram File Name (GXT File)	(d) Service Area Description. Provide list of geographic areas (state postal codes or ITU 3-ltr codes), satellites or Figure No. of Service Area Diagram.
1	S		AAB

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S7. SPACE STATION ANTENNA BEAM CHARACTERISTICS For each antenna beam provide:

(a) Beam ID	(b) T/R Mode	Isotropic Antenna Gain		(e) Pointing Error (Degrees)	(f) Rotational Error (Degrees)	(g) Min. Cross-Polar Isolation (dB)	(h) Polarization Switchable? (Y/N)	(i) Polarization Alignment Rel. Equatorial Plane (Degrees)	(j) Service Area ID	Transmit			Receive				
		(c) Peak (dBi)	(d) Edge (dBi)							(k) Input Losses (dB)	(l) Effective Output Power (W)	(m) Max. EIRP (dBW)	(n) System Noice Temp (k)	(o) G/T Max. Gain Pt. (db/K)	(p) Min. Saturation Flux Density (dBW/m2)	Input Attenuator (dB)	
																(q) Max. Value	(r) Step Size
V3R	T	53	50	0.05		30	Y		1	2	12.6	64					
V4R	T	53	50	0.05		30	Y		1	2	25.2	67					
V5R	R	54.4	51.4	0.05		30	Y		1				520	27.2	-95.3		

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S8. ANTENNA BEAM DIAGRAMS For each beam pattern provide the reference to the graphic image and numerical data:
Also provide the power flux density levels in each beam that result from the emission with the highest power flux density.

(a) Beam ID	(b) T/R Mode	(c) Co-or Cross Polar Mode ("C" or" X")	(d) GSO Ref. Orbital Longitude (Deg. E/W)	(e) NGSO Antenna Gain Contour Description (Figure/Table/ Exhibit)	(f) GSO Antenna Gain Contour Data (GXT File)	Max. Power Flux Density (dBW/M2/Hz) At Angle of Arrival above horizontal (for emission with highest PFD)				
						(g) 5 Deg	(h) 10 Deg	(i) 15 Deg	(j) 20 Deg	(k) 25 Deg
V3R	T	C	15		E 40 GHz Tx Antenna (	-140	-134	-126	-126	-126
V3R	T	X	15		E 40 GHz Tx Antenna					
V4R	T	C	15		E 40 GHz Tx Antenna (	-124	-120	-117	-117	-117
V5R	R	C	15		E 50GHz Rx Antenna (					
V5R	R	X	15		E 50GHz Rx Antenna					
KTR	T	C			V 20 GHz Tx Antenna	-121	-121	-121	-120	-120
KTR	T	X			W 20 GHz Tx Antenna					
KRR	R	C			V 30 GHz Rx Antenna					
KRB	R	C		eacon Antenna Beam						
KRB	R	X		Beacon Antenna Beam						
KTB	T	C		eacon Antenna Beam-		-119	-119	-118	-118	-118
KTB	T	X		Beacon Antenna Beam						
V4R	T	X	15		E 40 GHz Tx Antenna					
4	T	C	-119		0 GHz Tx Antenna Co	-121	-121	-121	-120	-120
4	T	X	-119		20 GHz Tx Antenna XP					
9	T	C	-119		V 40 GHz Tx Antenna	-140	-134	-126	-126	-126
9	T	X	-119		W 40 GHz Tx Antenna					
21	T	C	-119		V 40 GHz Tx Antenna	-124	-120	-117	-117	-117
21	T	X	-119							

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S9. SPACE STATION CHANNELS For each frequency channel provide:

(a) Channel No.	(B) Assigned Bandwidth (kHz)	(c) T/R Mode	(d) Center Frequency (MHz)	(e) Polarization (H, V, L, R)	(f) TTC or Comm Channel (T or C)
V1	300000	R	47350	L	C
V1	300000	R	47350	R	C
V2	400000	R	47700	L	C
V2	400000	R	47700	R	C
V3	300000	R	48050	L	C
V3	300000	R	48050	R	C
V4	500000	R	48450	L	C
V4	500000	R	48450	R	C
V5	500000	R	48950	L	C
V5	500000	R	48950	R	C
V6	500000	R	49450	L	C
V6	500000	R	49450	R	C
V7	500000	R	49950	R	C
V7	500000	R	49950	L	C
T2	2000	R	6435	H	T
T3	2000	R	6445	H	T
V1T	500000	T	37750	L	C
V1T	500000	T	37750	R	C
V2T	500000	T	38250	L	C
V2T	500000	T	38250	R	C
V3T	500000	T	38750	L	C
V3T	500000	T	38750	R	C
V4T	500000	T	39250	L	C
V4T	500000	T	39250	R	C
V5T	500000	T	39750	L	C
V5T	500000	T	39750	R	C
V6T	500000	T	40250	L	C
V6T	500000	T	40250	R	C
V7T	500000	T	40750	L	C
V7T	500000	T	40750	R	C

S10. SPACE STATION TRANSPONDERS For each transponder provide:

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID

V8T	500000	T	41250	L	C
V8T	500000	T	41250	R	C
V9T	500000	T	41750	L	C
V9T	500000	T	41750	L	C
T4	2000	T	3660	H	T
T4	2000	T	3670	H	T

S11. DIGITAL MODULATION PARAMETERS For each digital emission provide:

(a) Digital Mod. ID	(b) Emission Designator	(c) Assigned Bandwidth (kHz)	(d) No. of Phases	(e)Uncoded Data Rate (kbps)	(f) FEC Error Correction Coding Rate	(g) CDMA Processing Gain (dB)	(h) Total C/N Performance Objective (dB)	(i) Single Entry C/I Objective (dB)
D01	491MG7W	491000	4	706000	0.9		9.3	21.3
D02	175MG7W	175000	4	252000	0.9		9.3	21.3
D03	87M8G7W	87800	4	63000	0.4		7.1	19.1
D04	35M1G7W	35100	4	25000	0.4		7.1	19.1
D05	250MG7W	250000	4	149000	0.45		4.2	16.4
D06	125MG7W	125000	4	74000	0.45		4.2	16.4
D07	500MG7W	500000	8	748000	0.75		8.6	20.8
D08	600KG7D	600	2	300	1		15	27
D09	1M00G7D	1000	2	500	1		15	27

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S12. ANALOG MODULATION PARAMETERS For each analog emission provide:

(a) Analog Mod. ID	(b) Emission Designator	(c) Assigned Bandwidth (kHz)	(d) Signal Type	(e) Channels per Carrier	Multi-channel Telephony				(j) Video Standard NTSC, PAL, etc.	(k) Video Noise-Weighting (dB)	(l) Video and SCPC/FM Modulation Index	(m) SCPC/FM Compander, Preemphasis, and Noise Weighting (dB)	(n) Total C/N Performance Objective (dB)	(o) Single Entry C/I Objective (dB)
					(f) Ave. Companded Talker Level (dBm0)	(g) Bottom Baseband Freq. (MHz)	(h) Top Baseband Freq. (MHz)	(i) RMS Modulation Index						

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S13. TYPICAL EMISSIONS For each planned type of emission provide:

Associated Transponder ID Range		Modulation ID		(e) Carriers per Transponder	(f) Carrier Spacing (kHz)	(g)Noise Budget Reference (Table No.)	(h) Energy Dispersal Bandwidth (kHz)	Receive Band (Assoc. Transmit Stn)			Transmit Band (This Space Station)			
(a) Start	(b) End	(c) Digital (Table S11)	(d) Analog (Table S12)					(i)Assoc. Stn. Max. Antenna Gain (dBi)	Assoc. Station Transmit Power (dBW)		EIRP (dBW)		(n) Max. Power Flux Density (dBW/m2/Hz)	(o)Assoc. Stn Rec. G/T (dB/K)
									(j) Min.	(k) Max.	(l) Min.	(m) Max.		

S14. Is the space station(s) controlled and monitored remotely? If Yes, provide the location and telephone number of the TT and C control point(s): No

Remote Control (TT C) Location(s):

S14a: Street Address: TBD			
S14b. City: TDB	S14c. County: USA	S14d. State/Country	S14e. Zip Code:
S14f. Telephone Number:	S14g. Call Sign of Control Station (if appropriate):		

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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S15a: Mass of spacecraft without fuel (kg): 2700	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15b. Mass of fuel and disposables at launch (kg): 2800		
S15c. Mass of spacecraft and fuel at launch (kg): 5500	S15f. Length (m): 4.8	S15i. Payload: 0.78
S15d. Mass of fuel, in orbit, at beginning of life (kg): 1700	S15g. Width (m): 2.5	S15j. Bus: 0.93
S15e. Deployed Area of Solar Array (square meters): 38	S15h. Height (m): 2.5	S15k. Total: 0.72

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS:

Spacecraft Subsystem	Electrical Power (Watts) At Beginning of Life		Electrical Power (Watts) At End of Life	
	At Equinox	At Solstice	At Equinox	At Solstice
Payload (Watts):	(a): 8600	(f): 8170	(k): 7050	(p): 6696
Bus (Watts):	(b): 2100	(g): 2000	(l): 1720	(q): 1639
Total (Watts):	(c): 10700	(h): 10170	(m) 8770	(r): 8335
Solar Array (Watts):	(d): 11200	(i): 10670	(n): 9180	(s): 8745
Depth of Battery Discharge (%):	(e) 70 %	(j) 70 %	(o) 70 %	(t) 70 %

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	X	**YES**		**NO**		**N/A**
b. Are the appropriate service area coverage requirements of § 25.143(b)(ii) and (iii), or § 25.145(c)(1) and (2) met?		**YES**		**NO**	X	**N/A**
c. Are the frequency tolerances of § 25.202(e) and the out-of-band emission limits of § 25.202(f)(1), (2) and (3) met?	X	**YES**		**NO**		**N/A**

In addition to the information required in this Form, the space station applicant is required to provide all the information specified in Section 25.114 of the Commission's rules, 47 C.F.R § 25.114.